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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|-----------------------|---------------------|------------------|
| 10/065,462      | 10/21/2002  | Shankara Bonthu Reddy | 124611              | 4030             |

23413 7590 05/18/2006

CANTOR COLBURN, LLP  
55 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

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| EXAMINER |
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RAMIREZ, JOHN FERNANDO

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| ART UNIT | PAPER NUMBER |
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3737

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                                      |                                     |  |
|------------------------------|--------------------------------------|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/065,462 | <b>Applicant(s)</b><br>REDDY ET AL. |  |
|                              | <b>Examiner</b><br>John F. Ramirez   | <b>Art Unit</b><br>3737             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 23-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/27/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Group I in the reply filed on April 20, 2006 is acknowledged. The traversal is on the ground(s) that Groups I and II are related, and moreover, are related as subcombination and combination. Additionally, the applicant argues that the search and examination can be made without serious burden to the examiner since the material of class 600, subclass 428, is related to the material of class 600, subclass 425. Concerning Groups I and II, this is found persuasive. Accordingly, claims 1-22 would be examined. Concerning the argument that the search and examination can be made without serious burden to the examiner since the material of class 600, subclass 428, is related to the material of class 600, subclass 425, the examiner notes that this two subclasses require a different search. Consequently, the examiner finds that the search and examination of both subclasses will create a serious burden on the examiner. Moreover, in order to expedite the prosecution of this application, the requirement is still deemed proper and is therefore made FINAL.

Claims 23-36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on April 20, 2006.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

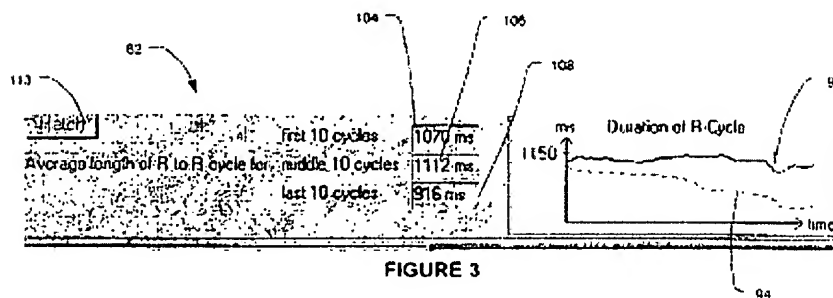
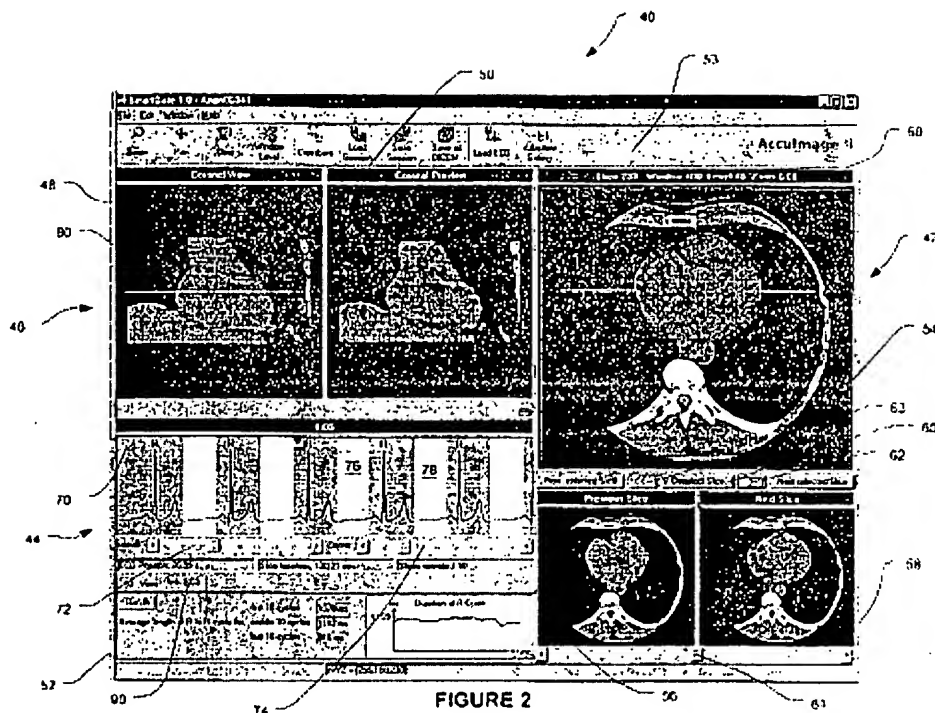
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 9-13, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaufman et al. (US 2003/0016852).

With respect to claims 1-4 and 9, Kaufman et al. teaches all the structures as set forth below. The method for calculating duration of a representative cardiac cycle using ECG waveform data (see Abstract), the method comprising: generating the ECG waveform data using an electrocardiogram device [0045]; evaluating the ECG data to validate a signal from the electrocardiogram device (see Abstract); detecting QRS complexes of ECG data using a detection function [0046]; analyzing underlying cardiac rhythm based on the detected QRS complexes [0049]; selecting an even number N of substantially normally shaped consecutive QRS complexes [0053] (see Fig. 3);

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computing an RR interval between the consecutive QRS complexes to yield N-1 intervals [0055]; calculating duration of the representative cardiac cycle by averaging at least a plurality of the N-1 intervals [0054], wherein the selecting an even number N of substantially normally shaped consecutive QRS complexes includes  $N \geq 8$  [0053], validating the signal from the electrocardiogram device includes evaluating for artifacts (see Abstract), in which the analyzing underlying cardiac rhythm includes determination of a suitable heart rate [0048][0095], wherein the selecting an even number N of substantially normally shaped consecutive QRS complexes includes selecting consecutive QRS complexes if abnormally shaped QRS complexes are present [0052] would be inherently met by the disclosure.



With respect to claims 10-13 and 18, Kaufman et al. discloses a system and a medium encoded with a machine readable computer program code for associating ECG waveform data with medical imaging data using a data synchronization scheme, the medium including instructions for causing a controller to implement the method mentioned above (see Figures 2 and 3).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 8, 13, 17, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman et al. in view of Boyd et al. (7,020,511) and in further view of Lutz (US 5,832,051)

In reference to claims 5, 8, 13, and 17, Kaufman et al. teaches all the limitations of the claimed subject matter except for mentioning specifically the steps of calculating duration of the representative cardiac cycle by averaging using a median method (col. 10, lines 6-15; col.15, lines 12-18), and selecting a middle interval, which is indicative of the representative cardiac cycle so as to associate with a computed tomography imaging system scan (see Abstract).

Concerning claims 19-22, Kaufman et al. does not disclose the step for associating ECG waveform data with image data generated by an imaging system using a data synchronization scheme (see abstract).

However, the steps of calculating duration of the representative cardiac cycle by averaging using a median method, and selecting a middle interval, which is indicative of the representative cardiac cycle so as to associate with a computed tomography imaging system scan and associating ECG waveform data with image data generated

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by an imaging system using a data synchronization scheme are conventional in the art as evidenced by the teachings of Boyd et al. (US 7,020,511) and Lutz (US 5,832,051).

The Boyd et al. patent teaches the steps of calculating duration of the representative cardiac cycle by averaging using a median method, and selecting a middle interval, which is indicative of the representative cardiac cycle so as to associate with a computed tomography imaging system scan (see Figures 5-8).

The Lutz patent teaches the step for associating ECG waveform data with image data generated by an imaging system using a data synchronization scheme (see Abstract and Figures 2 and 3).

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Kaufman et al., with the above discussed enhancements would have been considered obvious because such modifications would improve to select a trigger point along the cardiac cycle.

#### ***Allowable Subject Matter***

Claims 6, 7, 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.




***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JFR  
05/11/06

  
BRIAN L. CASLER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700